

## Claims

### What is claimed is:

1. A method for negotiating bandwidth of a Data Communication Channel (DCC)

5 automatically, comprising the steps of:

performing a first communication channel configuration by two network elements respectively;

informing, by the network element at transmitting end of the DCC, the network element at receiving end of the DCC of DCC negotiation message via the  
10 communication channel;

after receiving the DCC negotiation message, the network element at the receiving end comparing the DCC negotiation message with overhead bytes available to the network element at the receiving end, to obtain an intersection, which is overhead bytes, for constructing a DCC, available to both the network elements, wherein the overhead bytes as bandwidth of the channel are used to perform a second DCC configuration in  
15 the same order, so as to establish the DCC.

2. The method according to claim 1, comprising:

sending a DCC connection command from the two network elements to the  
20 opposite network element via the new DCC respectively;

after receiving the DCC connection command, sending a DCC connection acknowledgement command from the two network elements to the opposite network element respectively;

accomplishing establishment of the DCC after the two network elements receive  
25 the DCC acknowledgement commands.

3. The method according to claim 1, wherein the first communication channel configuration is performed in default configuration mode.

4. The method according to claim 1, wherein each DCC of the network elements determines whether to perform the DCC bandwidth negotiation in accordance with the requirements of users.

5 5. The method according to claim 3, wherein the network elements return to the default DCC configuration state if the configured timer is expired at any step during the second DCC establishment process.

10 6. The method according to claim 3, wherein both of the network elements at the transmitting and receiving ends of the DCC return to the default DCC configuration state if the preconfigured connected DCCs fails.

15 7. The method according to claim 3, wherein both of the two network elements perform the first DCC configuration by using one or more unused overhead bytes in a section overhead, the one or more unused overhead bytes in the section overhead comprising: D bytes and other unused section overhead bytes.

20 8. The method according to claim 1, wherein the DCC negotiation message comprises: overhead bytes and the order of the overhead bytes available to the transmitting end of DCC of the current network element.

9. The method according to claim 7, wherein the D bytes are in an order from D1 to D12.

25 10. The method according to claim 3, wherein during the second DCC configuration, the default DCC constructed by the default section overhead bytes is reserved, and the new DCC is constructed by using the newly-added section overhead bytes.

11. The method according to claim 1, wherein the SDH/SONET section overhead bytes for constructing the DCC are overhead bytes selected from a group consisting of D1-D12 bytes and other unused section overhead bytes, wherein the section overhead bytes used in the network elements at both ends of the DCC are consistent with each other.

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